

EXHIBIT 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD.,
Petitioner,

v.

SOLAS OLED, LTD.,
Patent Owner.

IPR2019-01668
Patent 9,256,311 B2

Before SALLY C. MEDLEY, JESSICA C. KAISER, and JULIA HEANEY,
Administrative Patent Judges.

KAISER, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

On September 30, 2019, Samsung Display Co., Ltd. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–20 of U.S. Patent No. 9,256,311 B2, issued on February 9, 2016 (Ex. 1001, “the ’311 patent”). Paper 1 (“Pet.”). Solas OLED Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we grant Petitioner’s request and institute an *inter partes* review of claims 1–20.

I. BACKGROUND

A. *The ’311 Patent (Ex. 1001)*

The ’311 patent describes “an apparatus [that includes] a substantially flexible substrate and a touch sensor disposed on the substantially flexible substrate. The touch sensor compris[es] drive or sense electrodes made of flexible conductive material configured to bend with the substantially flexible substrate.” Ex. 1001, code (57). Figure 7 of the ’311 patent is reproduced below.

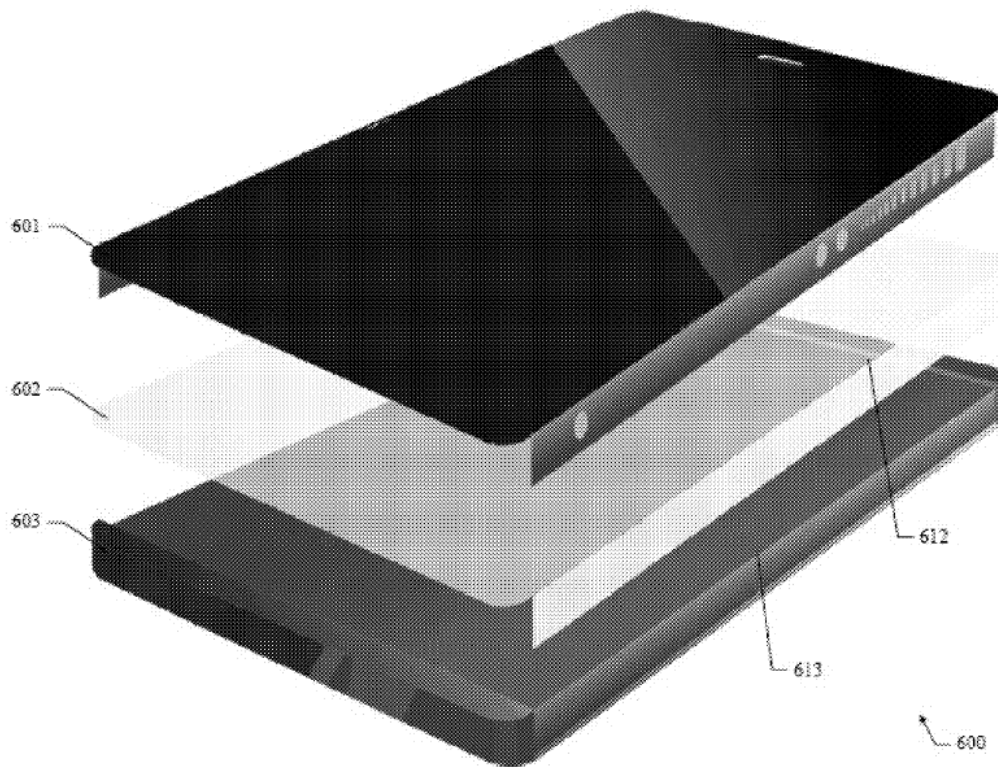


Figure 7

Figure 7 “illustrates an example mobile telephone that incorporates a flexible touch-sensitive apparatus.” *Id.* at 7:37–38. In Figure 7, phone 600 includes touch-sensitive apparatus 612 wrapped around display 613. *Id.* at 7:39–41. Substrate 602 may include tracking areas with tracks providing drive and sense connections to and from the drive and sense electrodes of touch-sensitive apparatus 612. *Id.* at 7:41–44. The electrode pattern of touch-sensitive apparatus 612 can be metal-mesh technology (e.g., “a copper, silver, or other suitable metal mesh”). *Id.* at 7:44–47. “Substrate 602 and the conductive material of the electrode pattern may be flexible, enabling the conductive material to wrap around the left and right edges of the surface,” and “[f]or sharper edges (e.g., with radii of less than 1 mm), the flexible conductive material of the electrode pattern may be thicker or wider

at the sharper edges than at the flat portions of [the] surfaces.” *Id.* at 7:48–55.

B. Illustrative Claim

Of the challenged claims, claims 1 and 7 are independent. Claim 1 is illustrative and is reproduced below.

1. An apparatus comprising:

a substantially flexible substrate; and

a touch sensor disposed on the substantially flexible substrate, the touch sensor comprising drive or sense electrodes made of flexible conductive material configured to bend with the substantially flexible substrate, wherein:

the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection to form a mesh grid; and

the substantially flexible substrate and the touch sensor are configured to wrap around one or more edges of a display.

Ex. 1001, 8:61–9:7.

C. Related Proceedings

Petitioner and Patent Owner identify a related litigation in the Eastern District of Texas asserting the ’311 patent, titled *Solas OLED Ltd. v. Samsung Display Co., Ltd., et al.*, Case No. 2:19-cv-00152-JRG (E.D. Tex.). Pet. 3; Paper 4, 1.

D. References

Petitioner relies on the following references:

1. “Kuriki” (US 8,722,314 B2; issued May 13, 2014) (Ex. 1003);

2. “Mikladal” (US 9,395,851 B2; issued July 19, 2016) (Ex. 1004);
3. “Philipp” (US 2011/0102361 A1; published May 5, 2011) (Ex. 1005);
4. “Rappoport” (US 2012/0218219 A1; published Aug. 30, 2012) (Ex. 1006);
5. “Moran” (WO 2010/099132; published Sept. 2, 2010) (Ex. 1007); and
6. “Joo” (US 2008/0223708 A1; published Sept. 18, 2008) (Ex. 1008).

E. Grounds Asserted

Petitioner challenges the patentability of the '311 patent claims on the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1–13, 15, 16, 18	103	Kuriki, Mikladal
14, 17	103	Kuriki, Mikladal, Philipp
19, 20	103	Kuriki, Mikladal, Rappoport
1–13, 15, 16, 18	103	Moran, Joo
14, 17	103	Moran, Joo, Philipp
19, 20	103	Moran, Joo, Rappoport

Petitioner also relies on testimony from Andrew Wolfe, Ph.D. (Ex. 1023).

II. ANALYSIS

A. *Legal Principles*

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in the record, objective evidence of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418.

B. *Level of Ordinary Skill in the Art*

Petitioner asserts one of ordinary skill in the art at the time of the invention “would have had a relevant technical degree in Electrical Engineering, Computer Engineering, Computer Science, Materials Science, or the like, and 2–3 years of experience in touch sensor design.” Pet. 10–11 (citing Ex. 1023 ¶ 77–78). Patent Owner does not dispute Petitioner’s assertions regarding the level of ordinary skill in the art. *See generally* Prelim. Resp. For purposes of this decision, we adopt Petitioner’s formulation because it is consistent with the ’311 patent and the asserted prior art.

C. Claim Construction

Petitioner asserts that it “does not believe that any specialized [claim] constructions are necessary,” but nevertheless discusses the meaning of “to form a mesh grid” and “the substantially flexible substrate and the touch sensor are configured to wrap around one or more edges of a display.” Pet. 11–13. Specifically, Petitioner contends “to form a mesh grid” in the context of the claims and the ’311 specification requires only “that at least one electrode (either the drive or sense electrode) be in the form of a mesh grid.” *Id.* at 11–12 (citing Ex. 1001, 2:15–20, 5:56–6:30; Ex. 1023 ¶¶ 81–82). Petitioner further contends that we need not determine whether “edges of a display” encompasses curved surfaces in addition to edges between substantially perpendicular surfaces because the references in the asserted grounds disclose touch sensors wrapped around substantially perpendicular surfaces of a display. *Id.* at 12–13. Petitioner also contends the recited “touch sensor” encompasses tracks or tracking in addition to electrodes. *Id.* at 13. Finally, Petitioner argues that the touch sensitive portion of the touch sensor need not be the portion configured to wrap around the edges of the display, but states that the Board need not resolve this issue because the references on which Petitioner relies teach wrapping the touch sensitive portions of a touch sensor around the edges of the display. *Id.* at 13–14.

Patent Owner does not propose that the Board explicitly construe any claim terms. *See* Prelim. Resp. We determine we need not explicitly construe any claim terms at this stage of the proceeding. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

D. Preliminary Matters

Patent Owner contends that the Petition “advances many more grounds” than the six obviousness challenges set forth in the Summary of

Challenge section. Prelim. Resp. 6. In particular, Patent Owner points to Petitioner’s arguments relying on Kuriki alone to disclose “the substantially flexible substrate and the touch sensor are configured to wrap around one or more edges of a display” and then alternatively relying on Kuriki in combination with Mikladal for that limitation. *Id.* at 6–7. Patent Owner also points to the Petition’s citation to references other than those specifically identified in the Petition’s Summary of Challenge. *Id.* at 7–8 (citing Pet. 45, 47–48); *see also id.* at 8–9 (citing Pet. 66, 68) (presenting a similar argument for the Moran-based grounds). Thus, Patent Owner argues we should deny the Petition as failing to comply with the requirements of 35 U.S.C. § 312(a)(3) and 37 C.F.R. § 42.104(b)(2). *Id.* at 9–11.

We decline to exercise our discretion to deny institution on this basis. First, we see no issue with Petitioner proposing alternative theories based on alternative claim constructions. Petitioner provided its proposed construction of “touch sensor . . . to wrap around [the] one or more edges” in which the “touch sensor” could encompass tracks in addition to electrodes and does not require “the *touch-sensitive portion* of the touch sensor be configured for wrapping around a display edge.” Pet. 13. Petitioner provided citations to the intrinsic evidence it contends supports this understanding. *Id.* (citing Ex. 1001, 3:31–4:36, 5:15–44, 5:19–21, Fig. 1, claims 2, 8). Petitioner contends Kuriki teaches this limitation under that construction (*id.* at 42–43) or that Kuriki in combination with Mikladal teaches that limitation if it requires “a touch-sensitive portion of the touch sensor be configured for wrapping around a display edge” (*id.* at 43–48). The Petition adequately provides Patent Owner with notice of both these theories, and indeed, Patent Owner has responded to both in its Preliminary Response. *See* Prelim. Resp. 12–23.

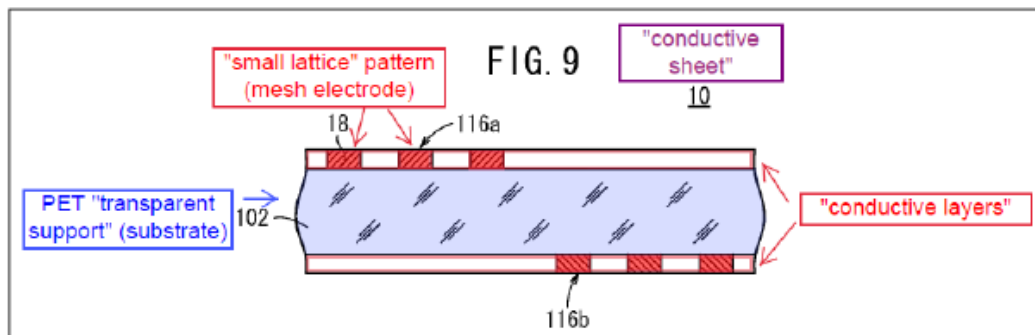
We also do not view Petitioner’s citation of additional references beyond those in the Summary of Challenge as being improper. Petitioner cites those references as evidence of the reason to combine Kuriki and Mikladal (Pet. 45, 66) and as evidence in support of reasonable expectation of success (i.e., as evidence to support that a person of ordinary skill in the art would have understood that metal mesh electrodes such as those in Kuriki or in the Moran-Joo combination were flexible and could be bent around the edge of a device) (*id.* at 47–48, 66).

We also do not view this case as analogous to *Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20 (Mar. 6, 2019) (informative), on which Patent Owner relies (Prelim. Resp. 10). In *Adaptics*, the Board found the Petition “suffer[ed] from a lack of particularity that results in voluminous and excessive grounds.” *Adaptics*, Paper 20 at 18. However, the Petition in that case included a catch-all ground (“[i]f Bendel and Sartorius are not anticipatory, the challenged claims are obvious over these references in combination with each other, Williams, Turnage, Abrams, Bordin, Mettler, Digi-Star, Yuyama, and/or Wright”) and noted the potentially hundreds of combinations from the Petition’s use of “and/or” in that and other grounds. *Id.* at 18–19. In this case in contrast, Petitioner is relying on additional references as evidence to support the reason to combine and reasonable expectation of success of its proposed combinations of references. We determine this is an appropriate use of that evidence which does not result in voluminous and excessive grounds.

E. Asserted Obviousness over Kuriki and Mikladal

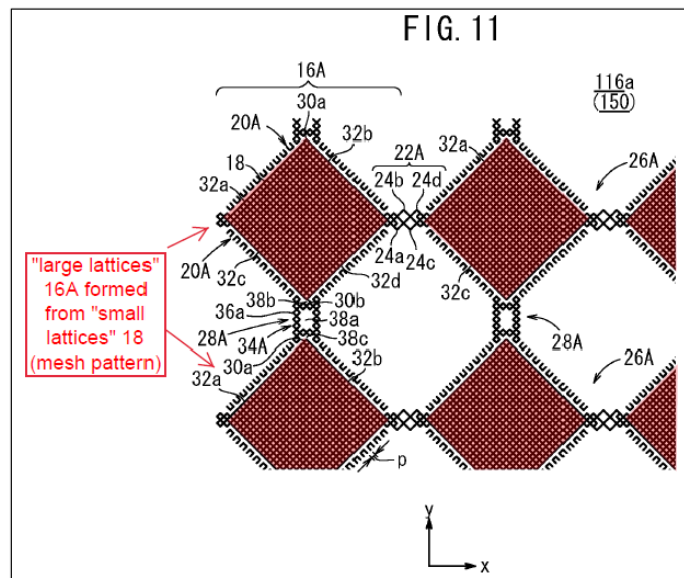
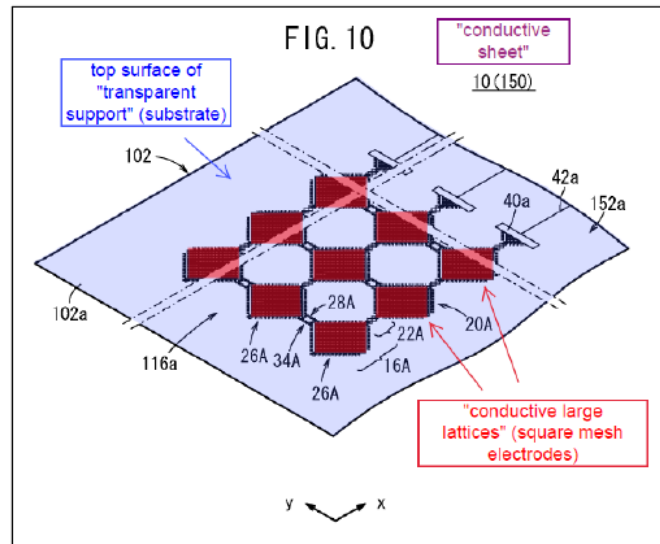
1. Overview of Kuriki

Kuriki “relates to a method for producing a conductive sheet (for example suitable for use in a projected capacitive touch panel) and a method for producing a touch panel.” Ex. 1003, 1:17–20. Figure 9 of Kuriki as annotated by Petitioner is reproduced below:



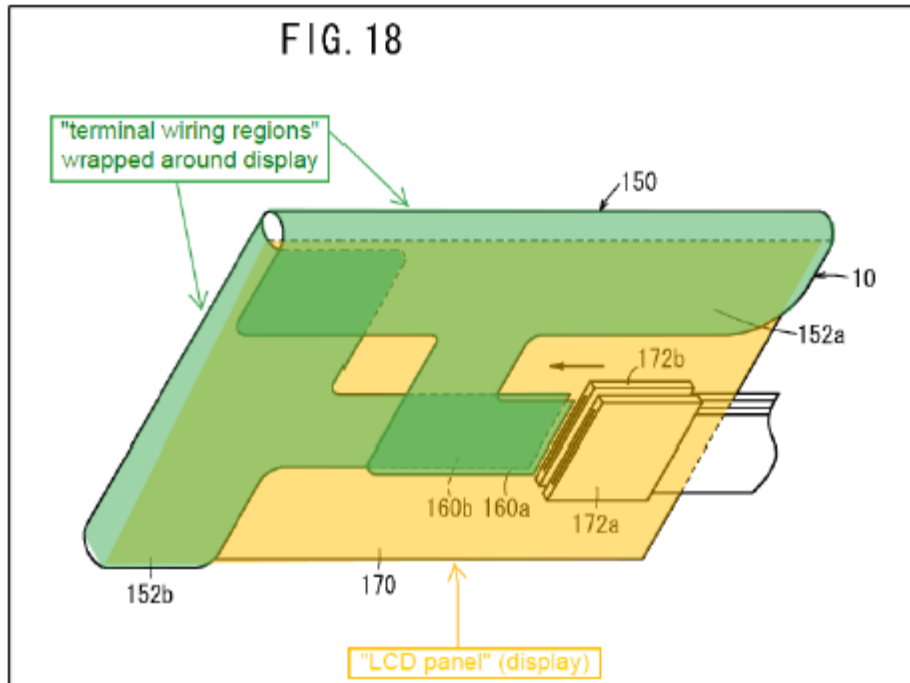
Pet. 16. Figure 9 depicts a cross-sectional view of conductive sheet 10. Ex. 1003, 6:37–38, 11:64–65. In that figure, small lattices 18 are on conductive layer 116a. *See id.* at 12:1–15.

Figures 10 and 11 of Kuriki as annotated by Petitioner are reproduced below.



Pet. 18–19. Figure 10 shows conductive patterns on a surface of a transparent support in a sensing region of a conductive sheet, and Figure 11 shows a portion of those conductive patterns in more detail. Ex. 1003, 6:39–44. In these figures, in sensing region 150, conductive large lattices 16A are formed on main surface 102a of transparent support 102, and each large lattice 16A contains two or more small lattices 18. *Id.* at 12:10–14.

Figure 18 of Kuriki as annotated by Petitioner is reproduced below.



Pet. 21. Figure 18 illustrates “a perspective view partially showing the bent first and second terminal wiring regions of the conductive sheet.” Ex. 1003, 7:1–3. Specifically, terminal wiring regions 152a and 152b in conductive sheet 10 are bent toward the back side of sensing region 150. *Id.* at 21:8–12.

2. Overview of Mikladal

Mikladal relates to a “capacitive touch sensitive film compris[ing] a conductive layer having a sensing region.” Ex. 1004, code (57). Mikladal states:

Flexibility and/or deformability of the touch sensitive film in combination with the unique sensitivity performance thereof opens entirely novel possibilities to implement touch sensing devices. For example, a touch sensitive film serving as the user interface of a mobile device can be bent or formed to extend to the device edges so that the touch sensitive film can cover even the entire surface of the device. In a touch sensitive film covering different surfaces of a three-dimensional device, there can be several touch sensing regions for different purposes. One sensing region can cover the area of a display to form a touch

screen. Other sensing regions e.g. at the sides of the device can be configured to serve as touch sensitive element replacing the conventional mechanical buttons, e.g. the power button.

Id. at 7:31–44.

3. Analysis

Petitioner contends claims 1–13, 15, 16, and 18 are unpatentable as obvious over Kuriki and Mikladal. Pet. 32–55. We have reviewed the information provided by Petitioner, including the relevant portions of the supporting Wolfe Declaration (Ex. 1023), and are persuaded, based on the current record, that Petitioner has demonstrated a reasonable likelihood of prevailing on this obviousness challenge.

For example, claim 1 recites “a substantially flexible substrate.” Ex. 1001, 8:62. Petitioner contends Kuriki teaches this limitation. Pet. 34–35. In particular, Petitioner contends that Kuriki teaches “‘transparent support 102,’ as the base of the ‘conductive sheet 10 used in the touch panel,’” and that the preferred material for that transparent material is “‘polyethylene terephthalates (PET),’ because of its ‘light transmittance’ and ‘workability.’” *Id.* at 34 (citing Ex. 1003, 11:57–12:3, 23:3–23). Petitioner also contends Kuriki teaches that conductive sheet 10 can be bent toward the back side of sensing region 150, and thus a person of ordinary skill in the art would have understood that Kuriki’s substrate is substantially flexible. *Id.* (citing Ex. 1003, 21:8–12, Fig. 15 at S106; Ex. 1023 ¶¶ 112–13).

Claim 1 further recites “a touch sensor disposed on the substantially flexible substrate, the touch sensor comprising drive or sense electrodes made of flexible conductive material configured to bend with the substantially flexible substrate.” Ex. 1001, 8:63–67. Petitioner contends Kuriki teaches conductive sheet 10 is used in a touch panel and includes

sensing region 150 which has “checkerboard-like conductive patterns (26A/26B) which are used to determine a ‘finger touch position.’” Pet. 35–36 (citing Ex. 1003, 11:57–12:25, 18:35–53; Ex. 1023 ¶ 114). Petitioner points to Kuriki’s large lattices as teaching drive and sense electrodes (*see* Pet. 36–39) and notes that Kuriki uses silver for the conductive patterns in those lattices which would be configured to bend with the PET substrate (*id.* at 39–40).

Claim 1 also recites “the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection to form a mesh grid.” Ex. 1001, 9:1–4. For this limitation, Petitioner points to Kuriki’s large lattices, which are made up of smaller lattices 18 as shown in Figures 11 and 13 of Kuriki. *See* Pet. 40–41.

Claim 1 further recites “the substantially flexible substrate and the touch sensor are configured to wrap around one or more edges of a display.” Ex. 1001, 9:5–7. For this limitation, Petitioner relies on Kuriki alone (Pet. 42–43) or Kuriki in combination with Mikladal (*id.* at 43–48). For purposes of this decision, we focus only on the latter contention. For that contention, Petitioner assumes this limitation requires the “*touch-sensitive portion* of the touch sensor be configured for wrapping around a display edge,” and argues that “it would have been obvious based on Mikladal to modify Kuriki’s touch panel so that the touch-sensitive portions of Kuriki’s ‘conductive sheet’ were also wrapped around the edges of the display.” Pet. 43–44 (citing Ex. 1023 ¶¶ 130–32).

Specifically, Petitioner points to Mikladal’s teaching of wrapping a touch sensitive film around a display edge:

Flexibility and/or deformability of the touch sensitive film in combination with the unique sensitivity performance thereof *opens entirely novel possibilities to implement touch sensing devices*. For example, a touch sensitive film serving as the user interface of a mobile device *can be bent or formed to extend to the device edges* so that the touch sensitive film can cover even the entire surface of the device. In a touch sensitive film covering different surfaces of a three-dimensional device, *there can be several touch sensing regions for different purposes*. One sensing region can cover the area of a display to form a touch screen. *Other sensing regions e.g. at the sides of the device can be configured to serve as touch sensitive element replacing the conventional mechanical buttons, e.g. the power button*.

Pet. 44 (quoting Ex. 1004, 7:31–44; citing Ex. 1023 ¶ 133). Petitioner contends a person of ordinary skill in the art “would have been motivated to wrap touch-sensitive portions of Kuriki’s conductive sheet (i.e., the sensing region 150 containing the ‘large lattice’ electrodes 16A/16B) around an edge of Kuriki’s display, in order to form sensing regions on the side of its touch panel,” and relies on Mikladal’s disclosure, Dr. Wolfe’s testimony, and contemporaneous references as support for that assertion. *Id.* at 45. Petitioner further contends that “[m]odifying Kuriki’s flexible conductive sheet using these teachings from Mikladal would have been well within the skill of a” person of ordinary skill in the art. *Id.* at 46–48 (citing Ex. 1023 ¶¶ 135–37).

Petitioner relies on the same analysis for the similar limitations of independent claim 7 and provides further analysis detailing where it contends an additional limitation of claim 7 as well as each additional limitation of claims 2–6, 8–13, 15, 16, and 18 are taught in Kuriki. Pet. 48–55. We have reviewed Petitioner’s evidence and argument, and find that

Petitioner has sufficiently shown Kuriki teaches each of these limitations at this stage of the proceeding.

Patent Owner argues neither Kuriki nor Mikladal teaches “a mesh grid configured to wrap around an edge.” Prelim. Resp. 15. Patent Owner further argues that Petitioner has not shown a person of ordinary skill in the art would have been motivated to wrap Kuriki’s conductive sheet with large lattice electrodes around an edge or that such a person would have succeeded in doing so. *Id.* at 15–16.¹ Patent Owner points to the width of the conductive patterns in Kuriki and notes that its electrical connections would not function properly if one or a few of the lines in those patterns were to break. *Id.* at 16–17. Patent Owner also notes that Kuriki chose to include only its terminal wiring patterns and not its lattice electrodes on the bent portions of conductive sheet 10. *Id.* at 17–18. Patent Owner also points to Dr. Wolfe’s testimony that a person of ordinary skill in the art would have been motivated to make metal lines at the edges wider and disclosure in a reference (Ex. 1006, “Rappoport”) of the same. *Id.* at 19–22 (citing Ex. 1023 ¶ 162; Ex. 1006). Patent Owner further argues that Mikladal does not support Petitioner’s arguments because it uses different conductive structures. *Id.* at 22–23.

We are not persuaded by Patent Owner’s arguments at this stage of the proceeding and based on the current record. Patent Owner’s contentions cite to Kuriki’s disclosures but otherwise are unsupported attorney

¹ Because we determine we need not resolve whether the touch sensitive portion of the touch sensor must be the portion configured to wrap around the edges of the display, we do not address Patent Owner’s arguments regarding whether Kuriki alone teaches this limitation. *See* Prelim. Resp. 12–15.

argument. *See* Prelim. Resp. 15–18. On the other hand, Petitioner’s contentions about the apparent reason to combine as well as reasonable expectation of success are supported by Dr. Wolfe’s testimony. *See* Pet. 44–48.

Patent Owner’s reliance on Dr. Wolfe’s testimony about the Rappoport reference is also currently unpersuasive. Prelim. Resp. 19–22. Based on the current record, even if the width of Kuriki’s lattice patterns would have needed to be increased to avoid breakage, the record does not contain evidence that making such a change would have been outside the level of skill. *KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

For the reasons discussed above, based on the current record, we determine Petitioner has shown a reasonable likelihood of prevailing with respect its challenge to claims 1–13, 15, 16, and 18 as unpatentable as obvious over Kuriki and Mikladal.

F. Asserted Obviousness over Kuriki, Mikladal, and Additional References

Petitioner contends claims 14 and 17 are unpatentable as obvious over Kuriki, Mikladal, and Philipp, and claims 19 and 20 are unpatentable as obvious over Kuriki, Mikladal, and Rappoport. Pet. 55–61. We have reviewed the information provided by Petitioner, including the relevant portions of the supporting Wolfe Declaration (Ex. 1023), and are persuaded, based on the current record, that Petitioner has demonstrated a reasonable likelihood of prevailing on these obviousness challenges. Patent Owner does not present any arguments as to these claims at this stage of the proceeding. *See* Prelim. Resp.

G. Asserted Obviousness over Moran and Joo

1. Overview of Moran

Moran discloses “touch screen sensors and micropatterned substrates that comprise a visible light transparent substrate and at least two electrically conductive micropatterns disposed on or in the visible light transparent substrate.” Ex. 1007, 4:18–20. Figure 2 of Moran is reproduced below.

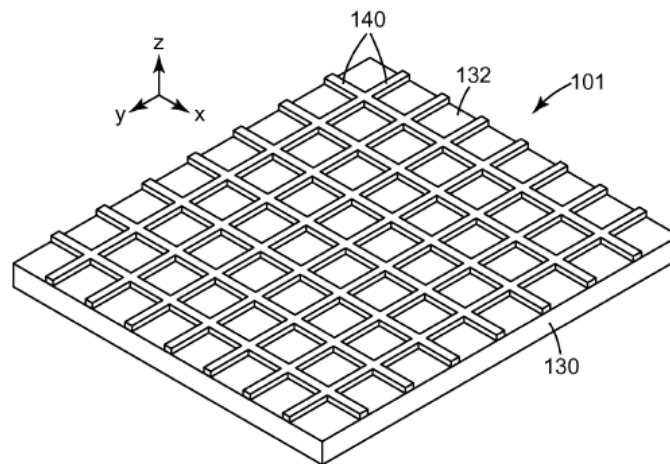


Fig. 2

Figure 2 illustrates “conductive visible light transparent region 101 that would lie within a touch sensing area of a touch screen panel.” *Id.* at 7:16–18. In Figure 2, electrically conductive micropattern 140 is disposed on visible light transparent substrate 130. *Id.* at 7:18–20. Moran states that its substrate and sensor “may be substantially planar and flexible.” *Id.* at 8:15–16.

2. Overview of Joo

Joo discloses a “cover for a mobile device.” Ex. 1008, code (57). The cover has a touch sensitive portion which can be at least partially located on a side surface. *Id.* ¶¶ 16, 17. Joo discloses its “touch input portion . . . is extendingly formed at the side surface portion of the cover as well as the

upper surface portion thereof,” and thus “a separate side key is not required to be mounted at the side surface of the terminal for generating input, thereby simplifying the manufacturing process thus to reduce the manufacturing cost and make the enhanced appearance of the terminal.” *Id.* ¶ 67.

3. Analysis

Petitioner contends claims 1–13, 15, 16, and 18 are unpatentable as obvious over Moran and Joo. Pet. 61–75. We have reviewed the information provided by Petitioner, including the relevant portions of the supporting Wolfe Declaration (Ex. 1023), and are persuaded, based on the current record, that Petitioner has demonstrated a reasonable likelihood of prevailing on this obviousness challenge.

For example, claim 1 recites “a substantially flexible substrate.” Ex. 1001, 8:62. Petitioner contends Moran teaches such a substrate because its “light transparent substrate 130” is made of PET and is “substantially planar and flexible.” Pet. 62 (quoting Ex. 1007, 7:16–26, 8:13–16; Ex. 1023 ¶ 167).

Claim 1 further recites “a touch sensor disposed on the substantially flexible substrate, the touch sensor comprising drive or sense electrodes made of flexible conductive material configured to bend with the substantially flexible substrate.” Ex. 1001, 8:63–67. Petitioner contends Moran discloses this limitation because it discloses “‘at least two electrically conductive micropatterns disposed on or in the visible light transparent substrate,’ which are connected to circuitry that ‘driv[es] the conductive micropatterns with electrical signals for the purpose of capacitively detecting the presence or location of a touch event to an information display.’” Pet. 62 (citing Ex. 1007, 4:18–26, 6:7–26; Ex. 1023 ¶ 168). Petitioner also contends

that a person of ordinary skill in the art would understand that each pair of Moran's electrically conductive micropatterns comprise drive and sense electrodes. *Id.* at 63 (citing Ex. 1007, 4:18–24, 6:15–26, 7:4–9, 9:6–7, 32:21–29; Ex. 1023 ¶ 170). Petitioner further contends that Moran's conductive micropattern is made from metal such as copper or silver and that its sensor is “substantially planar and flexible”; thus Petitioner contends a person of ordinary skill in the art would have understood Moran's electrodes are formed of flexible material configured to bend with the substrate. *Id.* at 64 (citing Ex. 1007, 8:13–16, 22:13–15; Ex. 1023 ¶¶ 171–72).

Claim 1 also recites “the flexible conductive material of the drive or sense electrodes comprises first and second conductive lines that electrically contact one another at an intersection to form a mesh grid.” Ex. 1001, 9:1–4. For this limitation, Petitioner points to Moran's Figure 2 reproduced above. Pet. 64–65 (citing Ex. 1007, Fig. 2, 9:17–22; Ex. 1023 ¶ 173).

Claim 1 further recites “the substantially flexible substrate and the touch sensor are configured to wrap around one or more edges of a display.” Ex. 1001, 9:5–7. For this limitation, Petitioner relies on Moran in combination with Joo. Pet. 65. Specifically, Petitioner points to Joo's teaching that when

the touch input portion for generating input when being touched is extendingly formed at the side surface portion of the cover as well as the upper surface portion thereof . . . a separate side key is not required to be mounted at the side surface of the terminal for generating input, thereby simplifying the manufacturing process thus to reduce the manufacturing cost and make the enhanced appearance of the terminal.

Id. at 66 (quoting Ex. 1008 ¶ 67; citing Ex. 1023 ¶ 176). Petitioner contends Joo “provides an express teaching, suggestion, or motivation for a [person of

ordinary skill in the art] to wrap Moran’s flexible touch sensor around the sides of the device to create additional touch-sensitive regions.” *Id.* at 66–67 (citing Ex. 1023 ¶¶ 177–83). Petitioner further contends that “[m]odifying Moran’s flexible touch sensor using these teachings from Joo would have been well within the skill of a” person of ordinary skill in the art. *Id.* at 67–68 (citing Ex. 1023 ¶¶ 180–83).

Petitioner relies on the same analysis for the similar limitations of independent claim 7 and provides further analysis detailing where it contends an additional limitation of claim 7 as well as each additional limitation of claims 2–6, 8–13, 15, 16, and 18 are taught in Moran. Pet. 69–75. We have reviewed Petitioner’s evidence and argument, and find that Petitioner has sufficiently shown Moran teaches each of these limitations at this stage of the proceeding.

Patent Owner argues neither Moran nor Joo teaches “a mesh grid configured to wrap around an edge.” Prelim. Resp. 23–26. Patent Owner further argues “[t]here is no evidence in the petition that the structure or techniques of Joo could be used with a touch sensor of the kinds described in Moran.” *Id.* at 26. In particular, Patent Owner points to the molding techniques described in Joo and argues “[t]aking Moran’s ‘substantially planar’ sensor and integrally molding it into the cover of Joo, would both stretch the sensor and expose it to hot resin.” *Id.* at 26–27.

We are not persuaded by Patent Owner’s arguments at this stage of the proceeding and based on the current record. We do not understand Petitioner’s combination to rely on any manufacturing techniques in Joo. Rather, we understand Petitioner to argue that a person of ordinary skill in the art would have found it obvious to wrap Moran’s flexible substrate including its conductive micropatterns around the sides of the device to

create additional touch sensitive regions on the sides of the device as taught in Joo. *See* Pet. 66–67.

Patent Owner also argues that neither Moran nor Joo teaches “drive or sense electrodes.” Prelim. Resp. 27–28. Specifically, Patent Owner contends that Moran does not use the word “electrode” and Petitioner does not point to any teaching in Moran that is a drive or sense electrode. *Id.* at 28. At this stage of the proceeding, we are not persuaded by this argument because it does not adequately address Petitioner’s arguments and evidence. Petitioner points to teachings in Moran from which Petitioner contends a person of ordinary skill in the art would understand that “each pair of conductive micropatterns in Moran comprise drive and sense electrodes, which together form a capacitive node.” Pet. 63 (citing Ex. 1007, 4:18–24, 6:15–26, 7:4–9, 9:6–7, 32:21–29; Ex. 1023 ¶ 170). Patent Owner’s arguments do not address Petitioner’s cited portions of Moran or Dr. Wolfe’s testimony, and we find Petitioner’s argument and evidence sufficient on this limitation at this stage of the proceeding.

For the reasons discussed above, based on the current record, we determine Petitioner has shown a reasonable likelihood of prevailing with respect to its challenge to claims 1–13, 15, 16, and 18 as unpatentable as obvious over Moran and Joo.

H. Asserted Obviousness over Moran, Joo, and Additional References

Petitioner contends claims 14 and 17 are unpatentable as obvious over Moran, Joo, and Philipp, and claims 19 and 20 are unpatentable as obvious over Moran, Joo, and Rappoport. Pet. 75–77. We have reviewed the information provided by Petitioner, including the relevant portions of the supporting Wolfe Declaration (Ex. 1023), and are persuaded, based on the

current record, that Petitioner has demonstrated a reasonable likelihood of prevailing on these obviousness challenges. Patent Owner does not present any arguments as to these claims at this stage of the proceeding. *See* Prelim. Resp.

III. CONCLUSION

We determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its challenges to claims 1–20 of the ’311 patent as set forth above. At this stage of the proceeding, we have not made a final determination as to the patentability of any of these challenged claims or the construction of any claim term.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–20 of the ’311 patent on the grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

IPR2019-01668

Patent 9,256,311 B2

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